

NOYES (I.P.)

The storm centres
and weather prophets



moves up a river, it will meet more waves than will strike it if going down stream. Light is the undulation of waves; thence if the spectroscope is set on a star that is approaching the earth, more waves will enter, than if set on a receding star, which fact is known by displacement of lines in the spectroscope from normal positions. It is found that many fixed stars are approaching, while others are moving away from the solar system.

We cannot note the researches of Edison, Lockyer or Tyndall, nor of Crookes, who has seemingly reached the molecules whence the Universe is composed.

The modern observatory is a labyrinth of sensitive instruments; and when any disturbance takes place in nature, in heat, light, magnetism, or like modes of force, the apparatus notes and records them.

Men are by no means satisfied. Insatiable thirst to know more is developing into a fever of unrest; they are wandering beyond the limits of the known, every day a little farther. They survey space, and interrogate the Infinite; measure the atom of hydrogen and weigh suns. Man takes no rest, and neither will he until he shall have found his own place in the chain of nature.

March 29th, 1881.

METEOROLOGY.

THE STORM CENTER AND WEATHER PROPHETS.

BY ISAAC P. NOYES, WASHINGTON, D. C.

The weather since the first of January 1881 has not even been as complimentary to Mr. Vennor as was that of December 1880, and re-affirms the statements so often made in these papers, in regard to the absurdity of attempting to guess at the weather, months, or even weeks in advance. Had we had the usual mid-January thaw, ignorant people and even many well informed people, would have claimed that it was all in accordance with Mr. Vennor's predictions and evidence of his great skill and knowledge in prophesying the weather.

Nine times out of ten it would be safe to venture a prediction, "that about the middle of January we would have a thaw," or at least some time in January. But this year for very simple reasons we did not have the thaw.

As stated in former papers, in winter, when the sun is south of the equator, the area of low-barometer travels on a lower line than during the summer months; and as the wind is always toward "low," it necessarily follows that the wind will be more generally from the north and hence cold. When the sun advances north the general effect is to advance the area of low-barometer to a higher line of latitude. Notwithstanding this general effect of the sun in developing *low*, and *low*, being generally on a higher line in summer than in winter, there are times in sum-

mer when it is on a very low line, and times in winter when it is on a very high line. It seldom, if ever goes over exactly the same ground, though it often takes a similar course and after running on one general line for a few times in succession, there will be a change to some opposite or extreme line, higher or lower, as the case may be.

So when fall sets in, the area of low-barometer creeps down relatively with the sun, and then as the sun advances north, this area of *low* goes north with it, yet all the while, with the changes herein spoken of intervening, making in summer north winds, and relatively cold days, and in winter southerly winds and relatively warm days. When one becomes familiar with these motions of *low*, or the concentration of the sun's heat, studies the causes, which day by day, week by week and month by month it follows—its regularity and irregularity—how steady at times it follows just where it would seem it ought to go, and how capricious at other times, as though it was determined to surprise man by both its regularity and irregularity; when we become cognizant of the laws which this department of nature follows; how it would seem bent on defying us to say when and where it will go, and when and where it will not go; when our senses perceive this, then and not until then will we realize the absurdity of the attempt to revive the old method of guessing at the weather for months in advance, or putting confidence in any person's attempt to indicate what the weather will be, from any pretended calculation of the movements of the moon or stars.

We all know that it is cold in winter and warm in summer, and that in the spring we will have blustering weather, cold winds and rain, and as the spring approaches summer, have what are known as "April showers"—sunshine and rain suddenly and closely interspersed. A little later, hot sultry days—long and protracted dry spells, with sudden changes and violent storms, accompanied with thunder and lightning. As the season advances, more evenly distributed areas of rain—days when it is quite cold and it would seem that winter had come, but it has not, for following this are those delightful hazy days in autumn, October and November, which are known in this country as "Indian Summer," for the reason that the first settlers thought on the first approach of cold weather, that winter had come, but the Indians told them that there would follow quite a spell of mild pleasant weather before the cold of winter really set in, and so it did and hence the name "Indian Summer." In those days the cause of this could not be explained, but to-day it can, and in former papers has been explained. Following this "Indian Summer" is the cold of winter, earlier in northern than in southern latitudes, (north of the equator). All this general knowledge of the weather of the months we know and knew before a weather bureau was established, or thought of, but we did not know the causes of the changes and their peculiarities.

There is no wisdom in any one telling us that it will be cold in winter or warm in summer, or generally that "July will be hot, with thunder storms," or "December cold, with heavy falls of snow," for these are the things or conditions which naturally follow, and if they do not follow, form an exception in the weather of

the year. We are continually having these exceptions—in the days—in the weeks—in the months and in the years. These *exceptions* are a part of the regular things to be expected, but there is no regularity about them, however. If there were, the exceptional features would lose their character.

This area of *low* is a very coy thing on the part of nature. Now like a wise, benevolent and broad-minded philanthropist it dispenses its bounties evenly, visiting on its course one section and another, giving all alike, at least all sufficient; then a change and as it were, Peter is robbed to pay Paul, or even worse, Peter robbed and denied the essentials of life to drown Paul with; an overflowing abundance that is detrimental rather than beneficial to him. Let people simply study the weather map and this will all be revealed to them, and more, they will soon see the absurdity of any person attempting to make such prophecies in regard to the weather, and of the attempt to write or speak on the subject without this knowledge.

A sea-captain would be more reasonable in this day, to attempt to navigate the seas and oceans of the globe without compass, quadrant and charts. We can not know much about navigation by merely knowing a few general laws of physics. We must, in order to know navigation, have knowledge of the tides, the compass, know how to take the sun and how to work our way by the charts, light-houses, buoys, etc. So when it comes to a knowledge of the weather, we must know a little more than the general laws of physics; we must make ourselves familiar with the movements of the sun in the ecliptic, with the parallelism of the earth, with the topography of the land, the distribution of land and water, of plains and mountains, and foliage, and even with the advancement of civilization. For, where civilization goes railroads are sure to follow, and it seems now to be well known and admitted, that railroads under certain relations to territory have more or less effect.

On the Western plains, where little or no rain occurred before the advent of the railroad, rain is now said to be quite frequent. The cause of this would seem to be that the iron rails attract the rays of the sun, and develop and retain heat, thereby making an area of low barometer practical in such localities, where before the dryness of the country repelled it or so neutralized it as to make it non-effective. This re-acts and produces trees, and so soon as foliage is developed, all the essential features for developing and retaining a *low* or making it a practical reality is secured. For *low* will not remain over night and thereby be sufficiently permanent to secure moisture to the land unless there is something to retain the heat developed by the sun.

Where there is moisture there is more material to form clouds, and where this moisture is the more clouds will hover over the spot and the factor *heat* be retained, by which other clouds are brought there to precipitate. This reveals to us the mystery of the superiority of territory where land and water are well distributed, and the necessity of restoring the balance where it is practicable. Land and water are both essential to our well being; organized as we are, we could not

live here without the two in at least fair proportions to retain such a balance of heat and cold, dryness and moisture, as is essential to human life. So the forces of nature, like the artificial forces, developed by civilized man, act and re-act upon each other. Let a few persons establish themselves in a certain spot, others follow in order to meet the demands of trade, supplies, and even luxuries. Their demands as individuals and as a settlement increases as the settlement grows. Nature works on a similar plan. Take an arid country—too dry and suddenly tempestuous for habitation; civilization advances to it. The railroad passing through it develops a capacity to retain heat; some humanitarian, like the man who planted the acres of pines along the desert wastes of Cape Cod, in Massachusetts, some man with an eye to the future, starts a few trees, and perhaps, at great expense, an Artesian well, or conducts water from some distant and more favored locality; it may be for his own selfish gain, yet he cannot enjoy his gain alone; indeed his gain becomes greater as others enjoy it with him; he and his neighbors act and re-act upon each other. This little water, this railroad, these few trees, are the nucleus. Other similar things follow and act and re-act upon each other, and teach the lesson and wisdom of the benefits to man, individually and collectively, by generosity, combination and the bringing together of natural forces, and how one set of natural forces may, to the great advantage of man, be made to neutralize another set, and that with advanced civilization come even blessings that we little dreamed of, and reveal to us what a generous thing nature is if we will only court her in a becoming manner. She is ever more ready to give than we to receive, if we will only have the wisdom to deal with her as we should. Nothing more than this teaches man, or more strongly reveals to him the importance of studying nature, and making himself familiar with the works of nature, and acting generously toward his fellow man. For we are so constituted that the more we elevate what is about us the more we elevate and benefit ourselves.

It would seem that mere selfishness would prompt men to such acts, but the trouble with mere selfishness is that it is very short sighted, and works for the immediate present rather than the eternal future. He who acts for the immediate present is necessarily interested in ignorance, for his whole trust is in this element whether he be honest or deceptively pretentious.

A person who pretends or is simple enough to think that he can figure out the weather, months in advance, is either ignorant himself of the laws which govern the weather, or presumes that his fellows are, and perhaps both, and in either case his dependence is in the ignorance of his fellow men rather than in their enlightenment.

After January had passed and we had entered February, Mr. Vennor comes out with a card and admits that the January thaw did not take place. He had made some miscalculation or other, and the *thaw had been crowded out by the extreme cold.* (1).

If Mr. Vennor had known what caused the continued cold weather of December and January, would it not seem natural that he should have informed the

public, but he seems to be as innocent and ignorant of it as an unborn babe, for he tells us that the thaw was *crowded out* (!). Yet it is said that this man is a scientist, at the head of the Canadian Meteorological Bureau, and a scientific man. I would like to see some medical man give some medical reason for the non-occurrence of something in his line on a par with this; some statesman; some lawyer—scientist or artist, attempt to hood-wink the public with *such a reason* (!).

If he were a person worth noticing the press of the land would soon make him the laughing stock of the age. The simple reason why we so often have a thaw in mid-winter is because of a high area of low barometer—that is, a number, say three or four or more areas of low barometer running on a high line of latitude with no similar area in the South to neutralize it. This causes south winds and gives us rain and thaw at the North, the result of which is to break up the ice and to sufficiently melt the snows to flood the streams, carrying off the ice and snow at least in part. We did not have this, at least, to any extent this year, for the reason that *low* was generally on a low line of latitude producing extreme cold with heavy rains, and even snow in the extreme Southern states.

They had more snow in New Orleans, in consequence, this year, than perhaps ever before. Snow in New Orleans is a very uncommon thing and had some person told the world, or even made a venture that such a thing would have occurred, by those ignorant of science he would have been termed a weather prophet indeed. It was an exceptional thing and the weather-map reveals the cause thereof, as well as a chart of the ocean which shows a dangerous reef would reveal the cause of the destruction of a vessel that was wrecked thereon. Now there is one thing these "weather prophets" may do, whereby they may obtain notoriety with the uninitiated, and that is to take the weather-map, study it for awhile in order to make themselves familiar with the workings of "High" and "Low" and then venture a daily guess of three or four days ahead of the Signal Office, and if they are expert, they may come pretty near the mark.

Indeed, it would seem that it was full time that the Signal Office took a new departure and advanced a step. It is sure to come some day, and as they have the best facilities, it would seem that they were the ones to do it, and that is, in addition to their present daily "Indications," have a sub-indication, which will be understood not to be so reliable, and one in which they may be allowed more latitude. Let the basis on which they would make these new advanced indications be understood, then intelligent people will not hold them responsible, but will with them take the chances.

The better the public understand the weather-map the better will this be revealed to them, and the better they will understand the duties and difficulties of the Signal Office if they should undertake this new departure. If they assume this extra task they might adopt some new term, which will not be so positive as the term at present used for the daily information given to the public. But whatever the term may be, let it be distinctly understood that the greater the time in advance, the more uncertainty; still, oftentimes the weather for three or four days

in advance, may be quite correctly given or revealed. If the Signal Office does not do this in course of time, some enterprising outsider will be sure to, and he will use their knowledge and material to accomplish it.

It would seem that it was full time that they added this auxiliary feature to their present daily indications. The intelligent world at least will be charitable toward them, and will not hold them too closely to the mark, and if they have the intelligent and generous people on their side, those who are able to understand the whys and wherefores, they need not fear the ignorant and exacting. The more the weather subject is understood, the more charity will the intelligent people of the country have for this office, and the more will they appreciate its labors, and the less respect will this same intelligent class have for all those would-be weather-prophets, who are assuming so much ignorance on the part of the public at large, and pretending to know so much more than other people, and more than the facts in the case will warrant. It is full time that the intelligent people of the world took hold of this subject and mastered it. They will find enough in it to fully repay them for the pains, and it will protect them against the imposition that at present they are so susceptible to and unprotected against.

KANSAS WEATHER SERVICE OBSERVATIONS AT WASHBURN COLLEGE, TOPEKA.

BY PROF. J. T. LOVEWELL.

Our last report closed February 20th, and the eight days succeeding gave us milder weather with no precipitation or storms, and the lowest temperature was 8°. During the first two decades in March the weather has further moderated. The heaviest fall of snow of this period was on the 7th, when about four inches of damp snow fell. It also snowed on the 2d and 17th; and rained on the 10th and 15th. The most noticeable phenomenon was the extremely low barometer on the 11th, when the reading was 28.12 at 9 p. m.; this is nearly .3 of an inch lower than observed at this station for more than two years. No storm occurred here during or immediately after this. There was thunder and lightning on the 14th and 15th. The first prairie fire occurred on the 13th. The highest temperature was 59°, on the 15th. The pressure has been below the average during the past month. The weather has been rather cold for the season, but we must regard it on the whole as favorable to vegetation, and there has been no premature starting of the buds. The following averages by decades will give a more complete statement of these facts. Robins were first seen here this year on Feb. 22.

